MAG "Materials Testing Frequency Guide" Working Sub-group
(Virtual) Meeting #3
Thursday, April 8th, 2021 @ 12:00 pm – 1:00 pm

I. Call to Order and Introductions

II. Attendance

III. Objective - Create Tables of uniform testing frequencies, house in MAG Section 601 or other appropriate section.

IV. "Draft 2" Tables (attached) – made more consistent, updated per 03/25 comments
   A. Native: Filled out remaining blanks, for today's meeting
   B. ABC: Filled out remaining blanks, similar to the Native table but suggest testing every other lift in many cases

V. Next Steps
   A. Consider the frequencies listed, adjust as needed (ongoing)
   B. Any changes to the table framework needed? (ongoing)
   C. Consider new requirements?
      a. Testing of bedding below pipe
      b. Testing of dry utility backfill in PUE
   D. Footnotes to consider, can be added to next draft:
      a. "Daily portion thereof"
      b. "Minimums" – agency can require more or less testing as needed
   E. Updating of relevant sections, clarification in details
   F. Would like to present as a case this summer
   G. Next meeting – Time & Date

VI. Adjournment

Notes from 04/08/21 virtual meeting:

- **Final backfill testing: Separated Final Backfill testing for Water and Sewer in 04/15 drafts:** The most discussed item of the meeting. Currently drafted as every 500' for consistency. Some support for testing between each manhole (Phoenix requires, "per pipe run", meaning between manholes, between valves etc). There is some concern that this could lead to excessive testing where manholes are closely spaced, e.g. 50' apart. A couple of people suggested every 300'. Depending on contractor's production, a "daily portion thereof" note may catch some of this. ***Still an open item, will keep at 500' for now but created a separate line for sewer "final backfill" with notes for further discussion.***

- **"Sewer Water Storm": Combined Sewer, Water, Storm mainlines in 04/15 draft.** At meeting, a question was raised why have different frequencies for different utilities. Rob G with Avondale had favored relaxing frequencies for backfill of shallower utilities such as water and storm. Overall consensus is to make tables as consistent as possible. Originally storm drain was kept separate due to springline testing for larger pipe diameters. Since we do encounter larger diameter sewer and water mains, tables were revised to combine Sewer, Water and Storm. Storm backfill may be further combined with Water or Sewer to make more concise.

- **PUE trench backfill: Added to 04/15 draft**. Overall agreement to add dry utility "main" PUE trench backfill testing to table – Phoenix already requires this at 95% compaction, Scottsdale requires, other agencies may also. Per MAG Table 601-2, only 85% compaction is required, this should be increased to 95%. The purpose is to prevent damage to residential driveways (especially brick pavers) when PUE trenches settle underneath. ***Will require a case to change MAG Table 601-2.***

- **ABC bedding and/or (native) foundation testing:** While a couple of agencies require density testing below pipe, the group agreed that there are generally few issues with settlement unless the foundation is disturbed/over-excavated. MAG 601.2.5 requires compaction of ABC to 95% where the foundation is over-excavated. Testing thin lifts of ABC is difficult, and the 4" ABC bedding will likely be compacted with simple foot traffic in the trench. ***Not adding to table.***

- **Deep backfill:** Some agencies have concerns about deep backfill. Avondale currently has a project with sewer backfill over 20' deep but cannot require full time monitoring. In the last meeting MCDOT indicated they have an internal SOP where they require more inspection but less testing of backfill deeper than 6'. This gives some assurance that the backfill compaction is being inspected with less risk to testing personnel. In this meeting there was some support for requiring full-time monitoring of deep backfill, for instance deeper than 10'. ***An open item, can add to tables as a footnote or create a separate line.***

- **Manhole backfill:** Discussion regarding if ABC backfill is or should be required around manholes. Currently stated as "earth retaining" but an argument could be made that this should include manholes, although not the intended design. More discussion on this one, leaving as is for now in tables. ***If ABC isn't required for manhole backfill, group can decide to add that and revise tables. May require a new case.***

- **Structural backfill:** Various MAG sections address structural foundation and backfill. Potentially good future cases to clean up or better cross reference. Also this could be simplified with a future table. Some structures are in the current table – manholes, headwalls, catch basins. ***Open item – we may keep only manholes in this table and remove the others for inclusion into a future "Structures" table.***

- **Reconcile two tables:** Overall agreement that requiring fewer tests where ABC is used would be acceptable, as currently drafted. Keeping the footage consistent for both tables but requiring fewer lifts to be tested where ABC is used is easier to follow. If the only main difference in the

tables is “every lift” for native vs “every other lift” for ABC, in the end we may go with one table and add a footnote. ***Keeping as two tables for now to facilitate work.***

- **Footnotes:** ***Two footnotes added to 04/15 draft***, addressing “agency has the right to modify” and defining “pipe runs”. ***Still need to add verbiage pertaining to “daily portion thereof”***.

- **Potholing:** There should be guidance in MAG for potholing procedures. Some potholing is unavoidable but it should be kept to a minimum. It can be used as a tool for random confirmation, but some contractors wait until they’re finished backfilling before they even call for backfill testing. Adding simple language along the lines of “contractor to pothole in presence of engineer or testing technician” would be ideal. There are also questions about potholing older material which has dried out. It may pass compaction but if it fails on moisture how is that addressed? ***Consider creating a subsection/future case for this***.